

## ABSTRACT

A method and apparatus for performing a fast Fourier transform (FFT) computation on large data sizes in real time is provided. The speed at which a FFT is performed is increased by reducing the number of times a Direct Memory Access (DMA) unit must transfer data between an internal memory and an external memory. This is achieved through an algorithm in which data is imported from the external memory into the internal memory and having the CPU perform several calculations on the imported data before it is exported back to the external memory. The imported data in the internal memory has a structure that results in a reduction of the number of times the imported data is swapped between different layers of the internal memory during the FFT computation. Furthermore, the DMA unit import/exports data between the internal memory and the external memory while at the same time having the CPU perform calculations on other data in the internal memory.